

141,930

PATENT



SPECIFICATION

*Application Date, May 16, 1919. No. 12,379/19.*

*Complete Left, Nov. 17, 1919.*

*Complete Accepted, Apr. 29, 1920.*

PROVISIONAL SPECIFICATION.

Improvements relating to Lubricators.

I, THOMAS EDGAR VAUGHAN, of Legge Street, in the City of Birmingham, Manufacturer, do hereby declare the nature of this invention (being a communication from E. F. Houghton & Company, of Third, American and Somerset Streets, Philadelphia, United States of America) to be as follows:—

5 This invention relates to lubricators, particularly for use with lubricant in the solid or grease form, and has for its object to provide in a simple and reliable manner for the liquefaction and delivery of the lubricant at any desired rate to an engine cylinder, a steam pipe line, or the like.

The invention comprises the combination with a cup or like container or  
10 receptacle provided with an outlet or delivery control valve, of means for the effective liquefaction of the lubricant in the vicinity of such control valve to ensure its passage therethrough even when opened to but a small extent, and for permitting observation of the outflow of lubricant.

In the construction of a lubricator in one convenient form in accordance with  
15 this invention, the cast metal or other cup or container has an opening at its upper end which is normally closed by a screw plug or other cover. Such plug or cover has a threaded central aperture to receive a screwed valve stem. The inner end of such stem is formed to serve as a conical valve whilst the upper and outer end of the stem is fitted with an operating handle or grip. A suitable  
20 stuffing box is provided to prevent leakage around the stem. The cup has also a filling aperture with closing plug and a blow off cock.

Within the cup a central tube or hollow stem, preferably integral with the cup, projects from the lower end to within a short distance of the top. At its upper end the said hollow stem has a restricted aperture and is adapted to  
25 provide a valve seating for the conical valve previously referred to. Below such valve seat the hollow stem has lateral extensions to the wall of the cup to provide an observation chamber having ends closed by glass or other transparent discs or plates to render visible the outflow of lubricant.

The lower end of the internal central hollow stem has connected to it a tube or conduit leading to the engine, steam main or the like to be supplied with lubricant.

Adjacent the bottom of the cup there is fixed a valve or cock controlling a pipe or conduit leading from a position in the steam main above the lubricator. An air relief valve is also provided on a lateral conduit leading from the upper  
30 part of the central hollow stem to and opening on the side of the lubricator.

[Price 1/-]

If it be assumed that the aforesaid outlet or delivery control valve is closed and that the valve or cock controlling the pipe leading from the steam main above the lubricator is also closed, the cup may be filled with grease or lubricant through the filling aperture. When so filled, and after replacement of the aperture closing plug, the valve or cock is opened to admit steam to the lubricator from the main above it. The heat of the steam will shortly liquefy the grease or lubricant whilst by the cooling of the air upon the pipe leading from the main down to the lubricator the steam in such pipe will condense and provide a head of water in the pipe in communication with the lower part of the cup and supporting the melted lubricant therein. The lubricant is maintained in a melted and heated condition by the steam supplied to the interior of the central stem from the aforesaid pipe leading from the lower end of such stem so that when the lubricant outlet or delivery control valve is opened, the said head of water will act to cause the liquefied lubricant to pass through the valve or valve way into the central stem at a rate observable through the window plates or discs aforesaid and dependent upon the amount of the valve opening. 5 10 15

The upper part of the central hollow stem and also the valve and its seating are at all times maintained in a heated condition owing to the presence of steam in the said stem. Clogging of the restricted valve way or passage by cold lubricant is thus effectually avoided. The liquefied lubricant after its passage through the valve way gravitates through the steam filled hollow stem and thence passes to the engine, steam main, or the like. 20

When all the lubricant has been discharged from the cup the blow-off cock is opened for the escape of the accumulated water, after which the cup is recharged with lubricant. 25

Dated this 15th day of May, 1919.

MARKS & CLERK.

### COMPLETE SPECIFICATION.

#### Improvements relating to Lubricators.

I, THOMAS EDGAR VAUGHAN, of Legge Street, in the City of Birmingham, 30 Manufacturer, do hereby declare the nature of this invention (being a communication from E. F. Houghton & Company, of Third, American and Somerset Streets, Philadelphia, United States of America) and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:— 35

This invention relates to lubricators, particularly for use with lubricant in the solid or grease form, and has for its object to provide in a simple and reliable manner for the liquefaction and delivery of the lubricant at any desired rate to an engine cylinder, a steam pipe line, or the like.

The invention comprises the combination of parts, hereinafter described and claimed, forming an improved lubricator of the type having a container fitted with a hollow stem communicating at its upper end by a valve controlled aperture with the interior of the container and at its lower end with the steam main or its equivalent to be supplied with lubricant, the said supply being effected by condensation of steam in the container. 40 45

Referring to the accompanying sheet of explanatory drawings:—

Figure 1 is a sectional elevation and Figure 2 a plan of a lubricator constructed in one convenient form in accordance with this invention.

Figure 3 is a sectional elevation (at right angles to that at Figure 1) showing the observation chamber. 50

The same reference letters in the different views indicate the same parts.

In the construction of a lubricator as illustrated, the cast metal or other cup or container has an opening at its upper end which is normally closed by a screw plug as *a* or other cover. Such plug or cover has a threaded central aperture to receive a screwed valve stem *b*. The inner end of such stem is formed to serve as a conical valve while the upper and outer end of the stem is fitted with an operating handle or grip. A suitable stuffing box is provided to prevent leakage around the stem. The cup has also a filling aperture *c* with closing plug *c*<sup>1</sup> and a blow off cock as *d*.

Within the cup a central tube or hollow stem *e*, preferably integral with the cup, projects from the lower end to within a short distance of the top. At its upper end the said hollow stem has a restricted aperture and is adapted to provide a valve seating for the conical valve *b*, previously referred to. Below such valve seat the hollow stem has lateral extensions to the wall of the cup to provide an observation chamber *f* having ends closed by glass or other transparent discs as *g* to render visible the outflow of lubricant.

The lower end of the internal central hollow stem has connected to it at *e*<sup>1</sup> a tube or conduit leading to the engine, steam main or the like to be supplied with lubricant.

Adjacent the bottom of the cup there is fixed a valve or cock *h* controlling a pipe or conduit *i* leading from a position in the steam main above the lubricator. An air relief valve is also provided at the outer end of a lateral conduit *j* leading from the upper part of the central hollow stem to and opening on one side of the lubricator.

If it be assumed that the aforesaid outlet or delivery control valve *b* is closed and that the valve or cock *h* controlling the pipe *i* leading from the steam main above the lubricator is also closed, the cup may be filled with grease or lubricant through the filling aperture *c*. When so filled, and after replacement of the aperture closing plug *c*<sup>1</sup>, the valve or cock *h* is opened to admit steam to the lubricator from the main above it. The heat of the steam will shortly liquefy the grease or lubricant whilst by the cooling of the air upon the pipe *i* leading from the main down to the lubricator the steam in such pipe will condense and provide a head of water in the pipe in communication with the lower part of the cup and supporting the melted lubricant therein. The lubricant is maintained in a melted and heated condition by the steam supplied to the interior of the central stem *e* from the aforesaid pipe or conduit leading to the engine or steam main from the lower end of such stem at *e*<sup>1</sup>, so that when the lubricant outlet or delivery control valve *b* is opened, the said head of water will act to cause the liquefied lubricant to pass through the valve or valve way into the central stem *e* at a rate observable through the windows or glasses *g* aforesaid and dependent upon the amount of the opening of the valve *b*.

The upper part of the central hollow stem *e* and also the valve and its seating are at all times maintained in a heated condition owing to the presence of steam in the said stem. Clogging of the restricted valve way or passage by cold lubricant is thus effectually avoided. The liquefied lubricant after its passage through the valve way gravitates through the steam filled hollow stem *e* and thence passes to the engine, steam main, or the like.

When all the lubricant has been discharged from the cup the blow off cock *d* is opened for the escape of the accumulated water, after which the cup is recharged with lubricant.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In lubricators, the combination with a lubricant container having a hollow

stem with a valve controlled aperture at its upper end for the admission of lubricant and connected at its lower end with the steam main or its equivalent to be supplied with lubricant, of means for imposing a water pressure head on the lubricant within the container to force same through the said valve controlled aperture, substantially as described.

2. In lubricators, the combination with a lubricant container having a hollow stem with a valve controlled aperture at its upper end for the admission of lubricant and connected at its lower end with the steam main or its equivalent to be supplied with lubricant, of means for imposing a water pressure head on the lubricant within the container to force same through the said valve controlled aperture, and an observation chamber arranged in the container to render visible the outflow of lubricant, substantially as described.

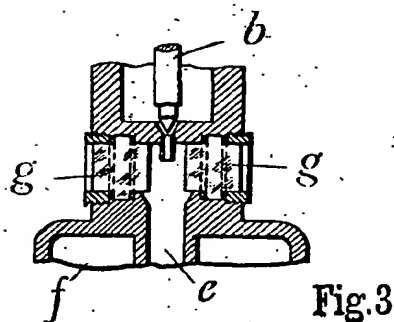
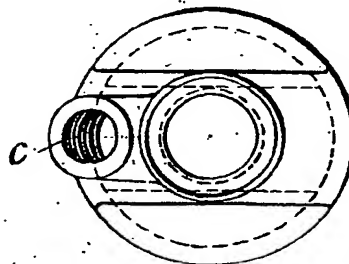
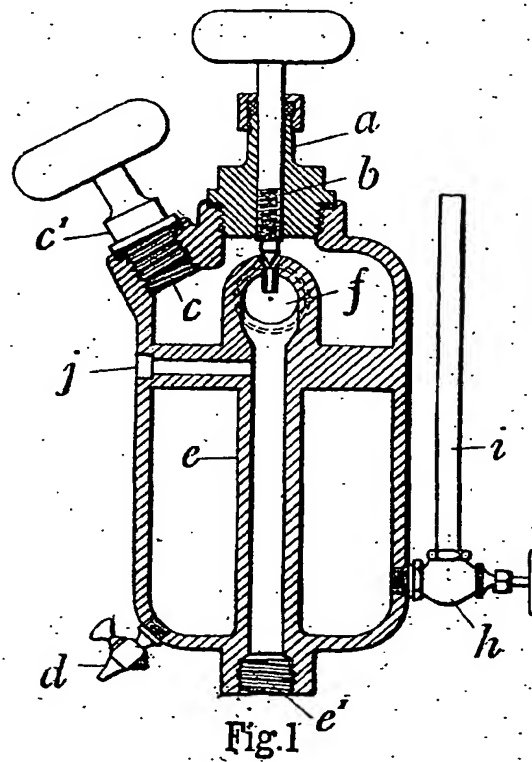
3. Lubricators constructed substantially as described and as illustrated in the drawings.

Dated this 12th day of November, 1919.

MARKS & CLERK.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1920.

[This Drawing is a reproduction of the Original on a reduced scale.]



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